



**US Army Corps
of Engineers**



ENVIRONMENTAL ASSESSMENT

**Proposed Access Road and Villas
Buzzard Rock Resort and Marina
Lake Barkley
Kuttawa, Kentucky**

DECEMBER 2008

For Further Information,
Contact:

Mark Vaughan

U.S. Army Corps of Engineers
Nashville District
P.O. Box 1070

Nashville, Tennessee 37202-1070

Telephone: (615) 736-7853

Email: mark.k.vaughn@usace.army.mil

**ENVIRONMENTAL ASSESSMENT
PROPOSED ACCESS ROAD AND VILLAS
BUZZARD ROCK RESORT AND MARINA**

CONTENTS

<u>SECTION</u>	<u>PAGE</u>
CONTENTS.....	3
TABLES AND FIGURES.....	4
1.0 INTRODUCTION.....	5
2.0 PURPOSE AND NEED FOR ACTION.....	5
3.0 ALTERNATIVES.....	8
4.0 AFFECTED ENVIRONMENT.....	10
5.0 ENVIRONMENTAL CONSEQUENCES.....	16
6.0 ENVIRONMENTAL COMMITMENTS AND SPECIAL CONDITIONS.....	24
7.0 ENVIRONMENTAL COMPLIANCE.....	25
8.0 SCOPING AND PUBLIC CONCERN.....	27
10.0 REFERENCES.....	28
11.0 LIST OF PREPARERS.....	30

TABLES

Table 1	Population, Median Household Income, Percent Poverty, and Percent Unemployment for Kentucky and Tennessee Counties within Lake Barkley Project Area
Table 2	Percent Employment by Industrial Classification for Kentucky and Tennessee Counties within Lake Barkley Project Area
Table 3	Resources Likely Affected by Proposed Villas and Access Roadway
Table 4	Federal Act/Executive Order Compliance

FIGURES

Figure 1	Location Map
Figure 2	Buzzard Rock Resort and Marina Proposed Site Plan

APPENDICES

Appendix 1	Scoping Letter and Responses, Environmental Assessment Review Responses, Mailing Lists, Notice of Availability
-------------------	--

1.0 INTRODUCTION

Leisure Cruise, Inc. (LCI) operates Buzzard Rock Resort and Marina near Cumberland River Mile 40, in Kuttawa, Kentucky. LCI currently leases approximately 71.1 acres of land and 51.8 acres of water for a total of 122.9 acres from the US Army Corps of Engineers (Corps) (see Figure 1). LCI has requested to construct 10 villas and an approximate 12 foot by 2,000 foot access road within their existing lease area. LCI's current lease runs until 2024.

The existing conditions and potential impacts of the proposed alternatives as related to granting the request to Leisure Cruise, Inc. are presented in this Environmental Assessment (EA). The EA was prepared pursuant to the National Environmental Policy Act (NEPA), CEQ regulations (40 CFR, 1500-1517), and the Corps implementing regulation, Policy and Procedures for Implementing NEPA, ER 200-2-2, 1988.

2.0 PURPOSE AND NEED FOR ACTION

2.1 Background

Lake Barkley is a relatively shallow lake impounding 118.1 miles of the Cumberland River from River Mile 30.6 above its confluence with the Ohio River to Cheatham Dam (River Mile 148.7). It is the lowermost mainstream project for the Cumberland River System. Barkley Dam was authorized by the River and Harbor Act of 1954.

Barkley Dam is a multiple-purpose project completed in 1965, and was designed for flood control, navigation, and hydroelectric power generation. Two additional purposes for which Lake Barkley is managed are recreation and fish and wildlife. The project was first identified as the Lower Cumberland Project, but was later redesignated as Barkley Lock and Dam and Lake Barkley in honor of the late Alben W. Barkley, the 35th vice president of the United States and late senator and a Paducah, Kentucky native.

Land acquisition for Lake Barkley was accomplished under the "Eisenhower Policy" where only the minimum amount of land needed for water resource project construction and operation was acquired. This policy called for purchasing in fee simple title to the 5-year flood frequency of elevation 367 feet above mean sea level (msl), and acquiring only a flowage easement (right to flood) for lands between elevations 367 and 378 above msl.

Additional land holdings purchased by COE at Lake Barkley included land for recreational areas such as campgrounds, day use areas, lake access areas, marinas, and other similar recreational facilities.

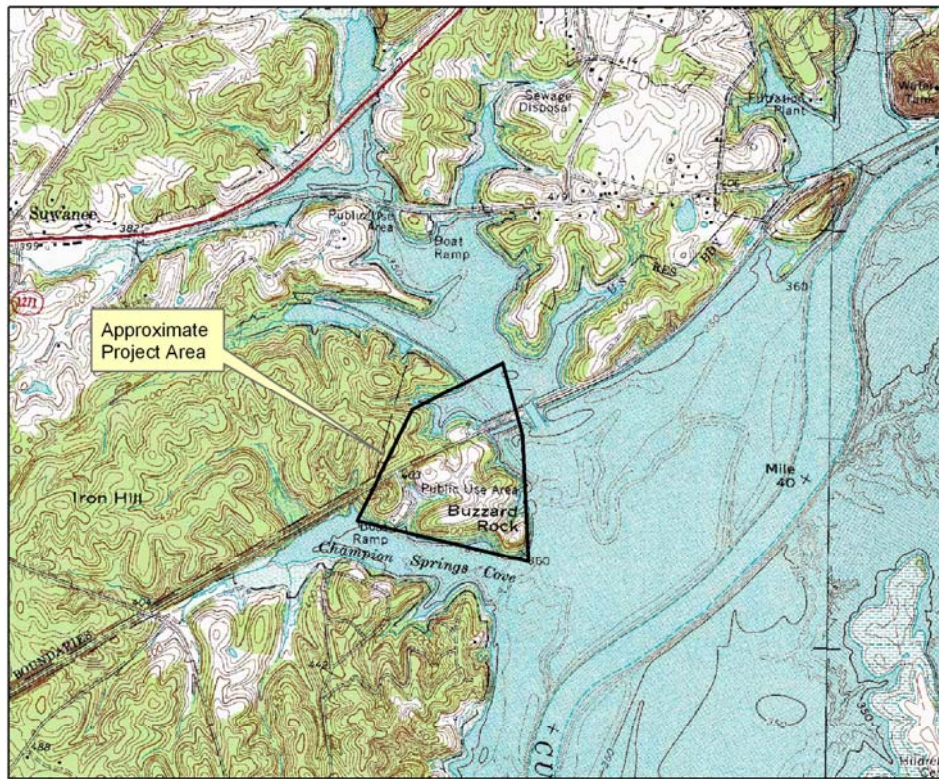
2.2 Purpose and Need for Action

Buzzard Rock Resort and Marina is located in a cove along the right descending bank on Lake Barkley at Cumberland River Mile 39.2. The Kentucky Lake-Lake Barkley Canal, located a few miles from Buzzard Rock connects Lake Barkley with Tennessee Valley Authority's Kentucky Lake and provides over 4,000 miles of shoreline and 220,000 acres of water surface. The two lakes surround the Land Between The Lakes (a US Forest Service National Recreation Area) and connects to the Intercoastal Waterway reaching all the way to the Gulf of Mexico.

Buzzard Rock Resort and Marina currently maintains a 285-slip marina, pontoon and fishing boat rentals, gas dock, ship store, resort units and cottages, and restaurant. Additional information regarding Buzzard Rock Resort and Marina can be found at <http://www.buzzardrock.com/>.

In addition to developed areas, Buzzard Rock Resort and Marina provides wooded areas for nature walks, hiking, and other outdoor activities.

Existing resort units and cottages are utilized by visitors at Buzzard Rock Resort and Marina, and demand for use is at a premium. Planned villas would serve to provide additional overnight facilities for visitors at the marina, or those visiting the area. Capital improvements planned would provide additional revenues to the lessee and to local economies. This environmental review and evaluation of alternatives are part of the Corps' process for reviewing requests for real estate actions involving public lands managed by the Corps.



USGS 1:24,000 QUAD, Grand Rivers

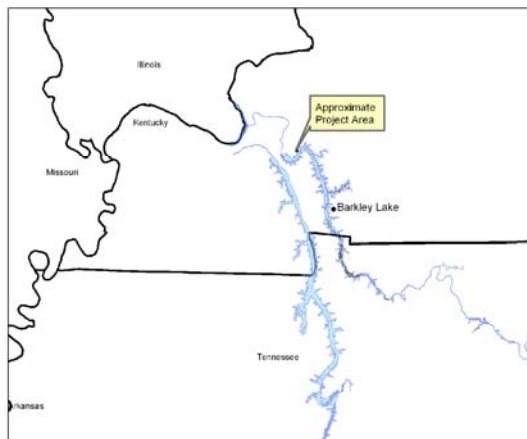


Figure 1. Location Map

3.0 ALTERNATIVES

The Corps is currently evaluating the following alternatives:

1. Approve request to construct 10 villas along with 12 foot by 2000 foot access roadway. (full development plan)
2. Approve the request to construct 10 villas along with 12 foot by 2000 foot access roadway with special conditions to minimize impact. (conditional development plan)
3. Disapprove the request and deny construction of villas and access roadway. This alternative would be the No Action alternative. (No Action)

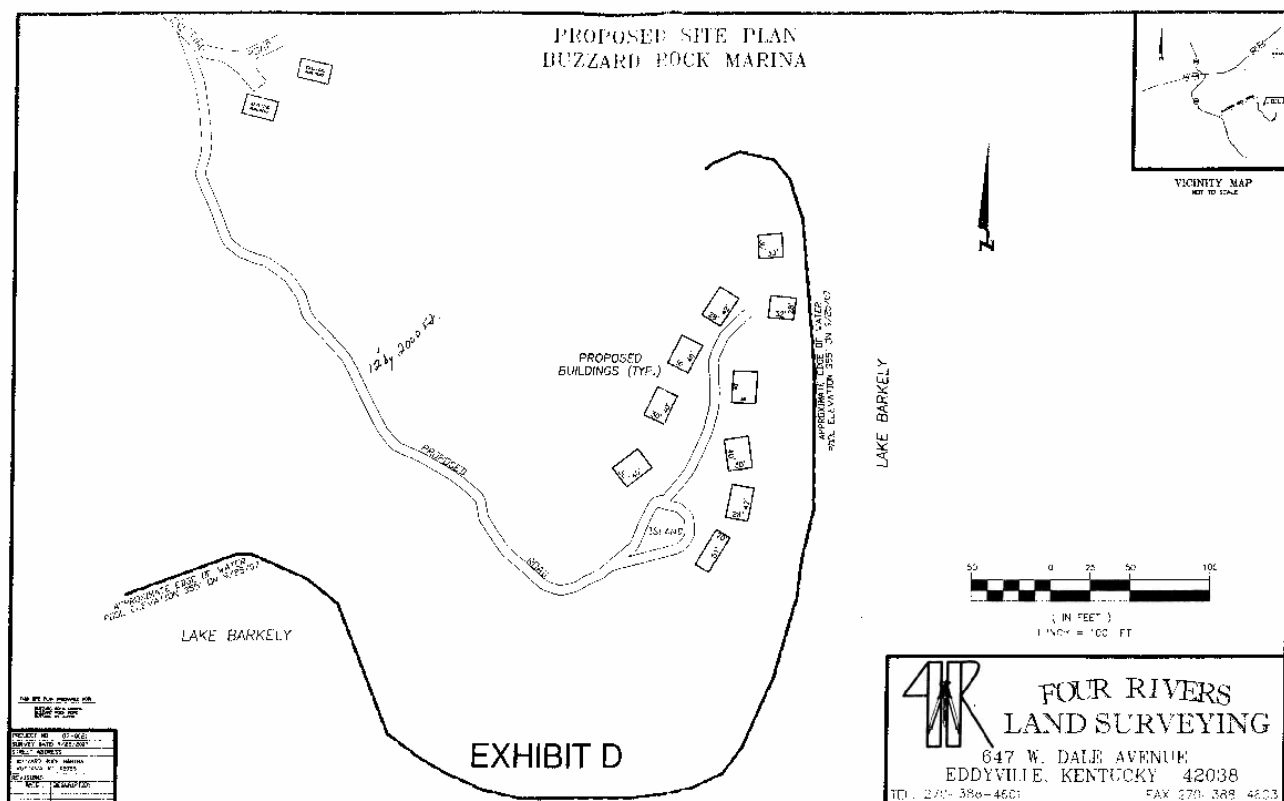


Figure 2 - Buzzard Rock Resort and Marina - Proposed Site Plan

3.1 Full Development Plan

Under this alternative, the Nashville District Corps of Engineers would approve the request from Buzzard Rock Resort and Marina for construction of 10 villas and access roadway. Full development plan includes the construction of 10 villas ranging

in size from 896 - 1,200 square feet each, and include a two-story construction plan with four-bedroom layout. A 12" wide access roadway approximately 2,000 in length would be constructed to villa complex. Proposed routing for access roadway would use a portion of existing roadway footprint from previously used farm road, and would connect with existing roadway within resort area. Each villa will have screened and open lakeside deck space, and includes 2 ½ - 3 bathroom layout design in each villa. Proposed utilities needed to serve villas would include water, electric and sanitary sewer facilities. Effluent generated by villas will be managed by connecting to existing sanitary sewer system. Access roadway would be asphalt construction, and would provide a loop at the end to route traffic out of the area. Vehicular traffic using access roadway would pass each other at periodic pullouts planned along the roadway. All development, construction, services to be offered, and final design would require Corps approval prior to implementation.

3.2 Conditional Development Plan

Under this alternative, the Corps would approve Buzzard Rock Resort and Marina request for construction of villas and access roadway with special conditions deemed necessary. Special conditions would be applied to lessen the environmental impacts from the construction and installation of 10 villas and access roadway. Examples of possible conditions include, but are not limited to: (1) limiting or specifying when construction activities could occur, (2) requiring added environmental protection measures such as requiring a Groundwater Protection Plan and/or (3) requiring special cautionary measures to limit potential adverse impacts that could interfere with other users of Lake Barkley.

With this alternative, Buzzard Rock Resort and Marina would be limited to developing and conducting activities in accordance with specified conditions. Any developmental plans submitted for approval would be required to include and comply with these conditions.

This is the preferred alternative.

3.3 No-Action

The No-Action alternative is defined as the Corps denying Leisure Cruise, Inc. request. Under the No-Action alternative, no modifications, expansions, or upgrades from this request would be considered.

4.0 AFFECTED ENVIRONMENT

4.1 Physiography and Topography

Lake Barkley is located in north-western Tennessee and south-western Kentucky, in an area that varies from gentle to moderately rolling hills. Lake Barkley project area is located within the Western Valley physiographic province. The Cumberland River below Barkley Dam empties into the Ohio River at Smithland, Kentucky. Lake Barkley is a relatively shallow lake impounding 118.1 miles of the Cumberland River from River Mile 30.6 above its confluence with the Ohio River to Cheatham Dam (River Mile 148.7).

At normal summer recreation pool (elevation 359 msl) Lake Barkley has 1,004 shoreline miles; 782 of which are adjoined by Government land held in fee ownership. The project has a total of 108,963 acres of land and water, including 34,464 acres of fee and easement land area above the summer pool. The irregular shoreline is surrounded by gently sloping to rolling hills with few bluffs and steep banks. Composition of the shoreline is generally mud, clay and gravel with some areas of sand or limestone rock outcroppings. The fee land above summer pool is approximately 60% in forest; primarily second growth oak-hickory complex. The other 40% is in various stages of succession.

Most of the fee-owned land is accessible to the public due to the land acquisition policy on Lake Barkley, which called for purchasing in fee simple title up to the 5-year flood frequency (elevation 367 msl) and acquiring flowage easement (right to flood) for lands between elevations 367 and 378 msl.

Site location for proposed villas and access roadway is on land within existing lease area current undeveloped. Location for proposed villas is immediately downstream from the marina, and located on a wooded knob located along a high bluff area with steeply sloped banks. Proposed development area is gently to moderately sloped, and includes areas to provide views of Lake Barkley from villas.

4.2 Aquatic Environment

Water Quality

In general, water quality conditions in the lakes are acceptable due to the relatively weak thermal stratification which helps maintain dissolved oxygen (DO) levels in the deeper waters.

During times of higher flow (and shorter residence times), DO depletion does not progress to the point where hypolimnetic (bottom) DO levels are low. As flows decrease and residence times increase, the effects of thermal stratification are more apparent and DO can become depleted in the lower reaches of Lake Barkley. Residence times during summer months generally can range from 10 to 45 days depending on flow conditions in the reservoir systems. Hypolimnetic DO is commonly low (0-3 mg/l) from the confluence of the Little River to the Barkley Canal (26 miles). Some recovery occurs below the canal due to a general inflow of surface water from Kentucky Lake.

The Proposed Final Version of the 2008 303(d) List prepared by Tennessee Department of Environment and Conservation (TDEC) lists some tributary streams flowing into Lake Barkley as being impaired due to municipal point source discharge, non-irrigated crop production, and failing collection systems. However, for overall status assessment, the 2008 305(b) Water Quality Status Report issued by TDEC describes the Lake Barkley Reservoir Watershed as being impaired on 20,459 acres due to low dissolved oxygen and temperature alterations. Thermal discharges from the Cumberland City Steam Plant impacted both recreation and aquatic life during the summers of 2007-2008 when reduced flows and ambient temperatures placed stresses on water quality.

The Kentucky 303 (d) report listed Lake Barkley and its tributaries as partially supporting all uses, which include warm water aquatic habitat and primary and secondary contact recreation (KYDOW, 2008).

Currently, Lake Barkley is listed by the Tennessee Wildlife Resources Agency (TWRA) and Kentucky Department of Fish and Wildlife Resources (KDFWR) as a discharge lake. Therefore, treated sewage from installed Type I and II marine sanitation devices on recreation vessels can be emptied into the lake.

Aquatic Resources

Tennessee Wildlife Resources Agency and Kentucky Department of Fish and Wildlife Resources are responsible for fisheries management as specified in the Operational Management Plan for Lake Barkley (USACE, 2005).

Lake Barkley's fishery is typical of Kentucky and Tennessee shallow-water reservoirs with a rich diversity of native and introduced species. Fishery habitat is considered good due to

shallow water conditions, abundant cover, and relatively stable lake levels.

Sport fishing is a very popular sport among visitors to Lake Barkley, with spring being the most popular fishing season. Sport fish sought include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*M. punctulatus*), white and black crappie (*Pomoxis annularis*, *P. nigromaculatus*), bluegill (*Lepomis macrochirus*) and other species of sunfish (*Lepomis* spp.), walleye (*Stizostedion vitreum*), muskellunge (*Esox masquinongy*), white bass (*Morone chrysops*), channel catfish (*Ictalurus punctatus*), and blue catfish (*Ictalurus furcatus*).

Other important species of fish within the lake include gizzard shad and threadfin shad (*Dorosoma cepedianum*, *D. petense*), alewife (*Alosa pseudoharengus*), various minnows and shiners (Cyprinidae), carp (*Cyprinus carpio*), freshwater drum (*Aplodinotus grunniens*), smallmouth buffalo (*Ictiobus bubalus*), various suckers (Catostomidae), and longnose gar (*Lepisosteus osseus*).

4.3 Terrestrial Resources and Land Use

Vegetation surrounding Buzzard Rock Resort and Marina is primarily oak-hickory forest (USACE, 1991). Dominate trees include shagbark hickory (*Carya ovata*), and white (*Quercus alba*), red (*Quercus rubra*), and black (*Quercus velutina*) oaks. Buzzard Rock Resort and Marina has considerable acreage maintained in forested areas, but much of the land is maintained grass areas in and around its facilities. Additionally, affected vegetation within proposed area includes mature hardwood trees such as shagbark hickory, black cherry (*Prunus serotina*), and honey locust (*Gleditsia triacanthos*). Understory vegetation is sparse within the proposed area due to well-developed upper story tree canopy. The marina also maintains parking areas for the marina, launch ramp, and existing cabins and cottages. The marina facility maintains an asphalt access road and parking lot that accommodates both single vehicles and vehicles with trailers. A concrete launch ramp is also available near the marina building located near the water's edge.

A variety of wildlife can be seen within the resort boundaries. The open and forested habitat provides for white-tailed deer (*Odocoileus virginianus*), squirrel (*Sciurus* spp), cottontail rabbits (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), and various other small mammals. Bird species are also abundant with a variety of songbirds, woodpeckers, owls, and hawks. Wild

turkey (*Meleagris gallopova*) is also commonly seen. Waterfowl common on the lake include wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), and American coot (*Fulica americana*).

4.4 Threatened and Endangered Species

A listing of threatened and endangered species within the three-county areas within Kentucky is listed. Bald eagles (*Haliaeetus leucocephalus*), no longer a listed species, are seen frequently during winter months on Lake Barkley. A scoping letter was sent to US Fish and Wildlife Service on 15 August 2008.

T/E Species - Trigg, Lyon, and Livingston Counties, Kentucky

Gray bat - *Myotis grisescens* (E)
Indiana bat - *Myotis sodalis* (E)
Bald eagle - *Haliaeetus leucocephalus* (T)
Winged mapleleaf - *Quadrula fragosa* (E)(h)
Orange-footed pearly mussel - *Plethobasus cooperianus* (E)(h)
Ring pink - *Obovaria retusa* (E)(h)
American burying beetle - *Nicrophorus americanus* (E)
Price's potato bean - *Apios priceana* (T) Pink mucket pearly mussel - *Lampsilis orbiculata* (E)
Clubshell - *Pleurobema clava* (E)(h)
Fanshell - *Cyprogenia stegaria* (E)(h)
Least tern (interior population) - *Sterna antillarum* (E)
Fat pocketbook - *Potamilus capax* (E)
White wartyback pearly mussel - *Plethobasus cicatricosus* (E)(h)

E - Endangered, T - Threatened, C - Species of Concern, h - historic (pre-1970)

4.5 Archaeological and Historic Resources

A review of the National Register of Historic Places listings and files maintained by the Nashville District Corps indicates that no historic properties are known to occur within the project area. The lessee of Buzzard Rock Marina, under the auspices of an Archeological Resources Protection Act (ARPA) Permit, and using an appropriate contractor, conducted an archeological survey of the entire leased property in January 2006. No archeological resources were identified during this undertaking.

4.6 Hazardous, Toxic and Radioactive Waste (HTRW)

There are no known HTRW concerns in the proposed area based on site reviews and records searches by Lake Barkley Natural

Resources project personnel. Site visit by Planning Branch personnel confirmed that the requested area of development is currently undeveloped. HTRW concerns were also reviewed by the State of Kentucky, and no concerns were found.

4.7 Air Quality

Lyon County is considered in attainment with national ambient air quality standards (KY DAQ, 2008).

4.8 Socio-Economic Resources

Lake Barkley encompasses portions of Stewart, Montgomery, and Cheatham Counties in Tennessee, and Trigg, Lyon, and Livingston Counties in Kentucky. Nearby population centers include Cadiz, Eddyville, Hopkinsville, and Oak Grove in Kentucky, and Clarksville, Dover, and Ashland City in Tennessee.

County populations and other demographics obtained from the US Census Bureau (2002) are provided in Tables 1 and 2.

Tourism at Lake Barkley and surrounding counties provides social and economic benefits to the local cities and counties. The visitation to Lake Barkley in 2008 was 3.3 million visits. This resulted in \$65.17 million spent by visitors within 30 miles of Lake Barkley. Local support services directly relating to operations at Lake Barkley accounted for an estimated 935 jobs in local communities surrounding the lake (USACE, 2008).

Table 1. Population, Median Household Income, Percent Poverty, and Percent Unemployment for Kentucky and Tennessee Counties within Lake Barkley Project Area.

County	Population (2000)	Median Household Income (\$) (2004)	% Below Poverty (2004)	% Unemployment (2006)
Trigg	12,597	39,400	13.0	5.0
Lyon	8,080	35,203	14.3	6.7
Livingston	9,804	34,487	12.8	6.0
Cheatham	35,912	49,274	9.9	4.3
Montgomery	134,768	42,959	11.6	4.8
Stewart	12,370	35,923	13.7	7.8

Table 2. Percent Employment by Industrial Classification for Kentucky and Tennessee Counties within Lake Barkley Project Area.

Industry (% employed) (2007)	Trigg	Lyon	Livingston	Cheatham	Montgomery	Stewart
Farming	24.5	27.3	14.8	19.3	14.5	10.3
Mining	--	--	14.3	--	.5	1.2
Government	4.8	13.1	4.1	18.3	17.9	44.5
Services	18.5	19.3	31.8	1.6	9.0	2.9
Retail Trade	--	--	--	3.8	20.3	12.8
Wholesale Trade	.8	1.0	--	--	2.8	2.8
Manufacturing	30.8	16.5	3.7	38.0	14.1	17.5
Construction	7.0	3.0	8.2	--	4.5	5.2
Transport & Communication	10.3	16.9	21.5	16.2	12.9	--
Finance/Insurance	3.3	2.9	1.6	2.8	3.5	2.8
-- not a classification/not applicable						

4.9 Recreation Resources

Camping, boating, fishing, swimming, skiing, hiking, and horseback riding are popular recreational activities on Lake Barkley and its public lands. In addition to the recreational resources at Buzzard Rock Resort and Marina, there are 8 full service commercial marinas on Lake Barkley. These facilities provide long-term boat moorage, pontoon, fishing and houseboat rentals, launching ramps, cabin rentals, campgrounds, picnic areas, restaurants, meeting facilities, and gift shops. The Corps of Engineers manages 14 developed recreation areas on Lake Barkley for day use and camping, boat launching, and other recreational opportunities.

Visitation to Lake Barkley has averaged over 3 million annual visits in the last five years. Visitor traffic results in intensive use of the lake and recreation areas during the recreation season, which typically runs from April-September. Corps, state and local law enforcement personnel provide visitor assistance and work to educate visitors about water and boating safety.

4.10 Aesthetics/Visual Resources/Noise

Lake Barkley is known for its natural setting, abundant wildlife and fisheries resources, and rural background. Lake Barkley shares a common shore with Land Between The Lakes, operated by the US Forest Service. Distinct seasons provide for excellent

opportunities for sight-seeing, fall color viewing, winter landscapes, and seasonal recreational opportunities. Visual resources of the proposed site include a commanding view of Lake Barkley above Buzzard Rock Resort and Marina, as well as a wooded area along the ridge and surrounding proposed development area. Landscape visibility is consider moderate to high, and provides both scenic attractiveness and landscape visibility. Minor noise levels are noted primarily around developed portion of resort and marina areas, and are primarily as a consequence of recreational activities.

5.0 ENVIRONMENTAL CONSEQUENCES

The following table summarizes which resources are likely to be affected by the construction of villas and access roadway. Discussion of potential impacts then follows.

Table 3: Resources Likely Affected by Construction of Villas and Access Roadway

Affected Environment	Likely to be Affected
Physiography and Topography	Yes
Aquatic Environment	Yes, short-term and localized
Terrestrial Resources/Land Use	Yes, minimal and localized
Threatened & Endangered Species	No, no species of concern in area
Archeological & Historic Resources	No archeological/historic properties impacted
Hazardous, Toxic, & Radioactive Waste	No
Air Quality	No
Socio-economics	Yes, positive benefits
Recreation Resources	Yes, positive benefits
Aesthetics/Visual/Noise	Yes

5.1 Physiography and Topography

5.1.1 Alternatives 1 and 2

Alternatives 1 (Full Development Plan) and Alternative 2 (Conditional Development Plan) would result in minor shaping of existing topography as a result of construction of access roadway. Building foundations necessary for villas would also require minor ground disturbance. Physiographic impacts for this proposal would be negligible.

5.1.2 No Action

No action alternative would result in no activity within the requested area as a result of this request.

5.2 Aquatic Environment

It is estimated that proposal would total approximately 0.8 acre ground disturbance, and therefore would not require a KPDES permit. Short-term construction impacts would be minimized by using proper Best Management Practices (BMPs) to reduce erosion, thereby having negligible impact upon the local aquatics. However, any small amount of increased run-off would not be significant.

5.2.1 Full Development Plan

Full development plan would result in the construction of 10 villas as described along with a 12' access roadway that intersects from existing roadway. It is anticipated that minor impacts could be expected with respect to aquatics.

5.2.2 Conditional Development Plan

Conditional development plan would involve development of proposed villas and access roadway with additional conditions considered. Additional runoff generated by impermeable surfaces such as roadway and villas would collect and be dissipated by overland flow.

The Proposed Action with Special Conditions would further reduce adverse impacts to the aquatic environment. Development of a Groundwater Protection Plan as described by Kentucky Department for Environmental Protection would serve to address on-site septic, fuel, and other issues that may affect local groundwater supply. In addition to state and federal regulations, special conditions would include requiring the lessee to implement BMPs to further reduce potential impacts. Examples include the placement of erosion control barriers around impacted areas and the placement of straw fences to catch and collect any accumulated sedimentation.

5.2.3 No Action

No action alternative would result in no additional facilities being built at proposed location, and therefore result in no impacts to aquatic resources.

5.3 Terrestrial Resources and Land Use

5.3.1 Full Development Plan

Minor impacts to terrestrial resources and existing land uses would be anticipated. Existing grade is acceptable for roadway construction and would be maintained where practical for access roadway. Limited vegetative clearing would be performed to construct access roadway along with utilities. A limited number of parking spaces would be provided for each villa to accommodate visitors parking needs. This would ensure parking in designated areas and prevent random parking that could impact land resources. Wildlife would be temporarily impacted during construction and perhaps afterwards from additional noise due to increased human and vehicular traffic; however, wildlife most likely would acclimate to the change in routine and return to the area.

5.3.2 Conditional Development Plan

Any special conditions to the Proposed Action would serve to limit the amount of disturbance caused by the Full Development Alternative. Additional runoff from impermeable surfaces such as roadway and villas can be anticipated, which can be managed by proper placement and operation of drainage structures such as ditches, gutters, and drain pipes. Special conditions could include BMPs to ensure grassed parking areas are not deteriorated or become erosive. In addition, water, electric, and sewer utilities would be required to run alongside proposed roadway to provide services for proposed villas to minimize overall impacts. Roadway routing and villa placement would be carefully considered to avoid mature trees within the impacted area. Limited number of parking spaces should be provided to serve villas constructed. Effluent generated by villas would be managed by use of existing sanitary sewer system, which is capable of handling additional flow.

5.3.3 No Action

There would be no additional impacts to terrestrial resources. Use of the land area would remain status quo.

5.4 Threatened and Endangered Species

A scoping letter requesting the concurrence of US Fish and Wildlife Service was sent on 15 August 2008. Endangered species coordination with the U.S. Fish and Wildlife (USFWS) and the Corps would be required prior to the construction of any proposed improvements to the lease area. A survey for occurrence of Threatened or Endangered Species could be

required. A "no adverse effect" concurrence from the USFWS would be required prior to any construction or soil disturbance.

5.5 Archaeological and Historic Resources

A letter requesting the concurrence of the Kentucky State Historic Preservation Officer (SHPO) was sent on 29 March 2006. A response dated 24 April 2006 was received from the Kentucky Heritage Council, and the KY SHPO identified a single late nineteenth to early twentieth-century farmstead, but was determined not to be eligible for listing on National Register of Historic Places designation.

5.6 Hazardous, Toxic and Radioactive Waste

No known HTRW sites exist at the proposed locations; therefore, there would be no anticipated impacts with any alternative.

Any proposal would be required to comply with all applicable federal, state and local laws regarding handling, storage, use, and removal of HTR materials.

5.7 Socio-Economic Resources

5.7.1 Full Development Plan

Socioeconomic impacts for this proposal are expected to be positive. Visitation increases relating to use of new facilities would increase revenues generated at Buzzard Rock Marina. This would in turn provide additional revenues generated to the local economy by visitors at Lake Barkley.

Tourism would be expected to increase as more facilities are provided to meet customer requests. This would be expected to spread through all neighboring counties as well as other marinas providing fuel, food, and other public services on Lake Barkley.

5.7.2 Conditional Development Plan

Impacts would be the same as those for the Full Development Plan.

5.7.3 No Action

There would be no expected change in existing socio-economic resources.

5.8 Recreation Resources

5.8.1 Full Development Plan

All local, state, and federal requirements would be required for all services provided at the marina. Materials used in construction and operation would have to meet regulations and specifications. Traffic issues would be addressed by constructing vehicular pullouts at locations along the roadway so that traffic may pass to and from villas, and therefore would be of minimal impact.

Recreational resources would improve due to the availability of additional cabins within Buzzard Rock Resort and Marina. Additional services needed for those staying at the marina such as food, fuel, ice, and other similar needs could be provided by existing services. Increased boating traffic would be anticipated by placement of additional overnight facilities, however, this would most likely occur at varying times throughout the day, and would be of little impact to marina operations or on Lake Barkley in the vicinity of the marina. Increased usage of rental boat could also be expected for those that do not own a boat or choose not to bring their boat with them.

5.8.2 Conditional Development Plan

Recreational resources impacts would be identical to those experienced under full development plan. Marina owner is also encouraged to continue educating recreational boaters, and especially those unfamiliar with the lake, with shallow water characteristics of Lake Barkley.

Special conditions such as design and structure placement in conjunction with construction of villas and access roadway could be required to reduce or eliminate health and/or safety concerns. Fire suppression/safety devices such as sprinklers within villas along with well-placed fire extinguishers would minimize fire hazards.

5.8.3 No Action

Existing overnight facilities serving Buzzard Rock Resort and Marina would continue to operate as usual, but existing accommodations likely would not be sufficient during periods of heavy use such as weekends and holidays. Existing overnight facilities would continue to age and eventually need rehabilitation or replacement. Visitors to the area would likely look for other overnight accommodations within the area if conditions deteriorate appreciably.

5.9 Air Quality

Impacts to air quality would be localized and short-term, and would only be a concern during construction phase of project. Impacts to air quality from proposed development would not be expected to affect Lyon County ambient air quality standards, for which attainment designations have been issued.

5.10 Aesthetics/Visual Resources/Noise

5.10.1 Full Development Plan

The lessee would be expected to develop and operate these additional facilities as an extension of existing facilities within Buzzard Rock Resort and Marina. Development and operation of structures and facilities would be expected to complement existing lease area design and not negatively impact aesthetics.

Aesthetics and noise concerns arising from this proposal would occur primarily during construction. The increase would likely be of limited impact and short term. Wildlife may avoid the area during construction and perhaps afterwards from additional noise due to increased human and vehicular traffic however wildlife most likely would acclimate to the change in routine and return to the area. Impacts would be moderate and localized.

5.10.2 Conditional Development Plan

Additional conditions, such as limiting project design, timing of construction, etc. would be implemented to further reduce aesthetic and/or noise impacts. Moderate visual impacts from villa construction could be minimized by proper site development and layout, and also maintaining existing shoreline vegetative buffer. Facility design would require Corps of Engineers approval, and consideration regarding color of villas buildings or use of natural wood tones could minimize visual impacts.

5.10.3 No Action

With no tree clearing or vegetative disturbance, there would be no change to aesthetics. The proposed development area would remain a forested knob with no additional recreational impacts. As existing facilities continued to deteriorate, there would be negative impacts to aesthetics; this would occur regardless of implementing the proposed project.

5.11 Cumulative Impacts

Cumulative impacts would result from the incremental impact of the proposed villas and access roadway added to those of other past, present, or reasonably foreseeable future actions in the local area. Additionally, future development could include 10 additional villas within the proposed development area. Geographical boundaries considered for this discussion of cumulative impacts are Lake Barkley Reservoir watershed. Temporal boundaries established span from reservoir impoundment (1966) to fifty years future projection.

Past, present and reasonably foreseeable future activities contributing with the proposed action to cumulative impacts in the area include the proposed expansion of Buzzard Rock Resort and Marina facilities as well as the likelihood of other proposed facility expansions and existing and future residential and commercial development. Impacts of the requested action that relate to these other actions in the vicinity are as follows.

- **Water Quality/Aquatic Life.** Water quality and aquatic resources within Lake Barkley have been determined to be impaired due to a number of factors. Recent drought conditions within the Cumberland River drainage basin have created water quality stresses throughout the Cumberland River Basin, and will continue to challenge water management entities with respect to improving water quality conditions. Recent climatic trends would also tend to add additional degradation potential due to anticipated higher water temperatures and lower flow levels, and would serve to create stronger thermal stratification and lower dissolved oxygen levels in the lake. Logging, municipal discharges, and increased residential development have been and continue to be primary factors affecting water quality, which in turn is supportive of the aquatic life. Improvements to adjacent private development with respect to wastewater management practices should serve to improve water quality conditions. Public education regarding the use of marina sanitation pump out facilities would help to improve local conditions. It is anticipated that water quality improvements initiated by both Tennessee and Kentucky would serve to improve water quality conditions, and therefore, improve aquatic habitat. Best Management Practices and local and state ordinances and regulations would be primary control measures for developments outside Corps jurisdiction. The Corps would continue to manage lands and waters in accordance with Operational Management

Plans (OMPs), which includes consideration of water quality and aquatic resources.

- Socio-economics. Farming historically was a major source of employment but has declined, most significantly in the last fifteen years. Manufacturing and service employment have had the most dynamic fluctuation in the adjoining Kentucky counties. Tourism and revenues generated by facilities on and around Lake Barkley have been and remain vital to the local economies in both Tennessee and Kentucky; reliance on these revenues is expected to continue. As revenues continue to grow, expansions of tourism and recreation facilities would likely continue in order to meet customer demands. The Resource Manager at Lake Barkley will have primary responsibility to ensure customer requests are in agreement with natural resources management goals and objectives.
- Terrestrial Resources and Land Use. In the vicinity of Buzzard Rock Resort and Marina, adjacent private development has continued at a steady pace. As property around Lake Barkley continues to experience adjacent residential growth from private development, terrestrial resources surrounding the reservoir become even more important. With the loss of vegetated land area outside Corps boundaries, types of wildlife using the area would change, and more pressure is placed on public lands. Lands under management by the Corps of Engineers would continue to be managed in accordance with the Lake Barkley OMP.
- Recreation. Visitation and recreation on Lake Barkley has shown increases in use and is expected to continue. With increased residential development in surrounding areas, more people are brought closer to the lake and its amenities. Continued increase in recreational demand of Lake Barkley could raise concern of exceeding carrying capacity. Currently there is no data to determine carrying capacity, which can be defined in terms of the lake's water quality parameters, aquatic habitat, continued use for hydropower and water supply, and the public's expectations for an enjoyable recreational experience.
- Health & Safety. With continuing expansion of lake use and numbers of lake users, health and safety for visitors to Lake Barkley will continue to be a primary concern. Boater education and environmental awareness have been measures

used to inform lake users of the resource available as well as how to protect themselves and the resource. Recent boating education programs have been initiated, and involve informing boaters of potential boating hazards and lake characteristics. COE will continue to provide services for health and safety of project visitors.

6.0 ENVIRONMENTAL COMMITMENTS AND SPECIAL CONDITIONS

The following commitments are made and special conditions added regarding implementation of the preferred alternative, which is granting the requested action by Buzzard Rock Resort and Marina to construct 10 villas and access roadway at Lake Barkley with conditions:

- All planned designs for proposed and future development would be subject to review and approval by the Lake Barkley Resource Manager prior to implementation.
- It would be the responsibility of Buzzard Rock Resort and Marina to obtain all necessary permits and comply with regulations.
- Develop a Groundwater Protection Plan as suggested by Kentucky Department for Environmental Protection to address on-site septic, fuel, and other issues that may affect groundwater supply.
- Although a KPDES permit for ground disturbance is not required, construction BMPs and implementation plans shall be used during construction and development phases to minimize environmental impacts. Specific examples include use of erosion control fencing, straw fences, and other methods to minimize adverse impacts from impacted area. Additional, site development plans will make every effort to avoid large trees within impact area, and contain concentrated runoff and roof drainage to minimize impact to aquatics. Rain gardens or other similar water quality/erosion control methods are encouraged.
- Special conditions are NOT limited to those mentioned in this Environmental Assessment. If the proposed expansion were approved, there could be additional conditions specific to submitted proposals.

- A minimum number of four-inch or larger trees needing removal for this project have been marked by Lake Barkley Ranger personnel. Buzzard Rock Marina management should contact the Lake Barkley resource office a minimum of one week prior to the start of any work on the proposed site.

7.0 ENVIRONMENTAL COMPLIANCE

Compliance with Federal Acts and Executive Orders are summarized in Table 4.

Table 4: Federal Act/Executive Order Compliance

Act/Executive Order	Status	Compliance
Wetlands (EO 11990)		N/A
Prime/Unique Farmlands		N/A
Floodplain Management (EO 11988)		N/A
Clean Water Act		
Section 404		N/A
Section 401		N/A
NPDES/KPDES Storm Water Permit		N/A
Fish and Wildlife Coordination Act		C
Endangered Species Act	No Affect	C
National Historic Preservation Act	No Affect	C
Environmental Justice (EO 12898)	No Affect	C
Clean Air Act		C
Comprehensive Environmental Response Compensation and Liability Act (CERCLA)		N/A
Resource Conservation and Recovery Act (RCRA)		N/A
Wild and Scenic Rivers Act		N/A
River and Harbor Act		N/A
N/A--not applicable C--Compliant		

7.1 River and Harbor Act

Waters within Lake Barkley are considered a navigable waterway; therefore requirements of Section 10 of the River and Harbor Act of 1899 are considered applicable for the proposed action. This proposal is not anticipated to impact provisions within this Act.

7.2 Fish and Wildlife Coordination Act

The Corps is required to coordinate with the USFWS and KDFWR under the Fish and Wildlife Coordination Act (FWCA) (48 Stat.

401, as amended; 16 USC 661 et seq.). This proposal is not anticipated to impact provisions within this Act. Coordination was initiated with the scoping letter and continued with notice of availability for this EA for review and comment.

7.3 Endangered Species Act

The Endangered Species Act (ESA) requires the determination of possible effects on or degradation of habitat critical to Federally-listed endangered or threatened species. Research and investigations did not reveal the presence of federally listed threatened or endangered species or supporting habitats within the proposed project area. Therefore, the Corps has reached a "no effect" determination. The Corps has requested concurrence with this determination from USFWS.

7.4 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires Federal agencies to promote "nondiscrimination in Federal programs substantially affecting human health and environment". In response to this directive, Federal Agencies must identify and address disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority and low-income populations. The final step in the environmental justice evaluation process is to evaluate the impact of the project on the population and to ascertain whether target populations are affected more adversely than other residents.

There would be no disproportional impact to minorities or low-income populations regarding this proposal. Buzzard Rock Resort and Marina's facilities provide public service to customers without bias to race or income; therefore there are no environmental justice concerns.

7.5 Cultural Resource Requirement

Section 106 of the National Historic Preservation Act of 1966 requires the Corps to identify historic properties affected by the proposed action and to evaluate the eligibility of those properties for the National Register of Historic Places. The Act also requires Federal agencies to provide the Advisory Council on Historic Preservation an opportunity to comment on undertakings through the process outlined in the Council's regulations (36 CFR 800).

The lessee of Buzzard Rock Resort and Marina, under the auspices of an Archeological Resources Protection Act Permit (ARPA), and

using an appropriate contractor, conducted an archeological survey of the entire leased property in January 2006. One identified historic farm site was noted during SHPO investigation of proposed location, but it was determined not to be eligible for the National Register of Historic Places. Concurrence from the Kentucky State Historic Preservation Officer (KYSHPO) was received in April 2006.

8.0 SCOPING AND PUBLIC CONCERN

8.1 Public Involvement

Scoping letters were mailed to state and federal governments with jurisdiction by law or special expertise and members of the public. (See Appendix 1 for mailing list.) This EA and unsigned FONSI are being circulated for a thirty-day comment period.

8.2 Scoping Responses

A scoping letter was issued on August 15, 2008. One comment was received via letter. Full comments are included in Appendix 1. These issues have been addressed in this Environmental Assessment.

The following issues were raised in regards to the proposed construction of 10 villas and access roadway.

- Issue: Construction of 10 villas and access roadway by Buzzard Rock Resort and Marina would adversely impact groundwater quality.
- Response: Development of a Groundwater Protection Plan would address issues pertaining to unintentional release of septic, fuel, or oil releases.

8.3 Environmental Assessment Responses

The Environmental Assessment is being circulated for a 30-day comment period. Responses from Environmental Assessment review will be included in Appendix 1.

9.0 CONCLUSIONS

This Environmental Assessment did not reveal significant onsite impacts with the preferred alternative, granting the proposed request to construct 10 villas and access roadway to Buzzard Rock Resort and Marina with special conditions. Major points

from the review of the anticipated environmental impacts include:

- No significant impacts are anticipated to water quality or aquatic, land and wildlife resources by the proposed activity.
- No known impacts would occur to threatened or endangered species with the proposed undertaking.
- There are no cultural or historic resource issues with respect to proposed action. Utilities required for construction of new facilities would follow along proposed impacted area to reduce overall impacts.
- All future proposals relating to or augmenting this proposal would require review by the Corps of Engineers prior to approval or implementation.
- Development of a Groundwater Protection Plan would address issues pertaining to unintentional release of septic, fuel, or oil releases.
- Access roadway and villas would be sited to avoid large trees to the maximum extent possible, and follow for the most part the footprint of old farm roadbed. Vegetative buffer would be maintained between rear of villas and shoreline, and villa construction could include use of natural tone paint or natural wood siding to minimize visual impacts. Storm water runoff would be properly addressed by using BMPs to address additional water generated from impervious surfaces, and could be minimized by construction of such features as rain gardens.

10.0 REFERENCES

Buzzard Rock Resort and Marina, Internet Website, 2008.
<http://www.buzzardrock.com/>

Kentucky Division for Air Quality, *Fiscal Year 2008 Annual Report*, http://www.air.ky.gov/NR/rdonlyres/DFBA692F-7C6C-4FE1-9CBB-86E26A10BB7B/0/DAQ_FY2008_AnnualReport.pdf

Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC), Division of Water, September 2008. *Use Assessment of Lakes and Rivers, 2008 Integrated Report to Congress on Water Quality in Kentucky (305[b] and 303[d] reports).*

U.S. Army Corps of Engineers, Nashville District, *Value to the Nation, Lake Barkley*, 2006.
<http://www.vtn.iwr.usace.army.mil/recreation/receconomic.htm>

Tennessee Advisory Commission on Intergovernmental Relations, 2005. *County Profiles*. <http://www.state.tn.us/tacir/>.

Tennessee Department of Environment and Conservation, Division of Water Pollution Control, April 2008. *2008 305(b) Report; The Status of Water Quality in Tennessee*.
http://www.state.tn.us/environment/wpc/publications/2008_305b.pdf

Tennessee Department of Environment and Conservation, Division of Water Pollution Control, *Proposed Final Version Year 2008 303(d) List*, September 2008.

US Army Corps of Engineers, *Lake Barkley and Kentucky Lake Tennessee/Kentucky Summer Pool Extension Evaluation Environmental Assessment*, 2006.

US Army Corps of Engineers, *Value to the Nation web site, Lake Level Report - Lake Barkley*, 2006. www.CorpsResults.us.

US Army Corps of Engineers, Nashville District, *Operational Management Plan, Lake Barkley*, 2005. Nashville, Tennessee.

US Census, *Tennessee QuickFacts*, 2002.
<http://quickfacts.census.gov>.

US Fish and Wildlife Service, *Endangered Species of Kentucky*, January, 2002.
<http://www.fws.gov/cookeville/docs/endspec/ky/kycty.html>

US Fish and Wildlife Service, *Endangered Species of Tennessee*, June 2007.
<http://www.fws.gov/cookeville/docs/endspec/tn/tncty.html>

11.0 LIST OF PREPARERS

Mark Vaughan, Biologist
Primary EA Preparation

Kim Franklin, Biologist
Independent Technical Review

Valerie McMormack/Rob Karwedsky, Archeologist
EA Review - Cultural and Historic Resources

Tim Higgs, Chief, Environmental Section, Project Planning Branch
EA Preparation and Review

APPENDIX 1

Mailing Lists
Scoping Letter and Responses

USFWS
Mr. Lee Andrews
330 West Broadway, Rm 266
Frankfort, Kentucky 40601

Farm Services Agency
Mr. David McDoyle, Executive Director
579 U.S. Courthouse
Nashville, TN 37203

Department of Environment Protection
Attn: Larry Taylor
14 Reilly Road
Frankfort, Kentucky 40601

Buzzard Rock Resort and Marina
985 Buzzard Rock Road
Kuttawa, Kentucky 42055-0130

Boathaven Resort
3025 Rockcastle Road
Cadiz, Kentucky 42211

Eddy Creek Marina
7612 State Route 935
Eddyville, Kentucky 42038

Cadiz Record
55 Nunn Blvd
Cadiz, KY 42211

The Gleaner
P.O. Box 4
Henderson, KY 42420

Paducah Sun Newspaper
P.O. Box 2300
Paducah, KY 42002

U.S. Department of the Interior
Office of Environmental Policy and
Compliance (MS-2342)
1849 C Street NW
Washington, DC 20240

Jenny Adkins, Water Quality
USDA - NRCS
675 U.S. Courthouse
801 Broadway
Nashville, TN 37203

Green Turtle Bay, Inc.
P.O. Box 102
Grand Rivers, Kentucky 42045

Kuttawa Marina, Inc.
1709 Lake Barkley Drive
Kuttawa, Kentucky 42055

Prizer Point Marina
1777 Prizer Point Road
Cadiz, Kentucky 42211

Bumpus Mills Marina
197 Marina Road
Bumpus Mills, Tennessee 37028

The Courier-Journal
P.O. Box 740031
Louisville, KY 40201

Herald Ledger
P.O. Box 577
Eddyville, KY 42038

Carlisle County News
P.O. Box 309
Bardwell, KY 42023

Tribune-Courier
P.O. Box 410
Benton, KY 42025

The Lake News
P.O. Box 498
Calvert City, KY 42024

Trigg Times
P.O. Box 101
Cadiz, KY 42211

William P. Lisowsky
US Forest Service -LBL
100 Van Morgan Drive
Golden Pond, KY 4221

Holiday Hills Resort
5631 KY 93 South
Eddyville, KY 42038

J.D Lee
Lyon County Judge Executive
517 S.R. 730 W
Eddyville, KY 42038

Hap Chambers
Kentucky Ornithological Society
33 Wildwood Drive
Murray, KY 42071

Lake Barkley State Park & Marina
P.O. Box 790
Cadiz, KY 42211

Mark S. Bennett
The Kentucky Ornithological Society
113 Iroquois Circle
Russellville, KY 42276-8887

Scoping Letter and Responses



DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1070
NASHVILLE, TENNESSEE 37202-1070

AUG 15 2008

IN REPLY REFER TO

Project Planning Branch

TO ALL INTERESTED PARTIES:

The Corps of Engineers (Corps), Nashville District, has received a request from Leisure Cruise, Inc., d/b/a Buzzard Rock Marina, to construct 10 new villas and a 12' by 2000' roadway within their existing lease area. The Marina is on Lake Barkley and is located in Kuttawa, Kentucky (see enclosed map). The proposed road and villas would be located on approximately 10 acres within the existing Buzzard Rock Marina lease area.

In accordance with ER 200-2-2, Procedures for Implementing the National Environmental Policy Act (NEPA), an Environmental Assessment is being prepared to evaluate the potential impacts of granting a lease. Three alternatives have been identified and will be considered under an Environmental Assessment (EA). Alternative 1 is to grant the lease request. Alternative 2 is to grant the lease request with special conditions to minimize environmental impacts. Alternative 3 is to deny the lease request (No Action).

This letter serves to solicit scoping comments from the public; federal, state and local agencies and officials; Indian Tribes; and other interested parties concerning environmental concerns that should be addressed in the course of the NEPA process.

The public is invited to submit written comments to this scoping **no later than** **SEP 16 2008**. Please send your comments to the address above. If you have any questions, please call Mr. Chip Hall at 615-736-7666. Your participation is appreciated.

Sincerely,


Patty Coffey
Chief, Project Planning Branch



ENERGY AND ENVIRONMENT CABINET

Steven L. Beshear
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
FAX (502) 564-4245
www.dep.ky.gov

Leonard K. Peters
Secretary

R. Bruce Scott
Commissioner

October 3, 2008

Mr. Chip Hall
Department of the Army
Nashville District, Corps of Engineers
P.O. Box 1070
Nashville, TN 37202-1070

Re: Villa and Roadway Construction in the Buzzard Rock Marina Lease Area. (SERO 2008-18)

Dear Mr. Hall,

The Energy and Environment Cabinet serves as the state clearinghouse for review of environmental documents generated pursuant to the National Environmental Policy Act (NEPA). Within the Cabinet, the Commissioner's Office in the Department for Environmental Protection coordinates the review for Kentucky state agencies.

We received the request dated August 15, 2008 for input on the referenced project. Comments were received from the Kentucky Division of Water regarding the project. The Division of Water's Watershed Management Branch commented that due to the building of 10 villas, there may be onsite septic, fuel oil tanks and other issues that may require a Groundwater Protection Plan. Phil O'dell of the Groundwater Section is the contact for these issues. He may be reached at (502)564-3410.

If you should have any questions, please contact me at (502) 564-2150, ext. 112.

Sincerely,

Larry C. Taylor
State Environmental Review Officer



COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Ernie Fletcher
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

April 24, 2006

George Ward
~~XXXXXX~~
Secretary

David L. Morgan
Executive Director and
State Historic Preservation Officer

Mr. Wayne Pederson
Buzzard Rock Resort & Marina
985 Buzzard Rock Road
Kuttawa, KY 42055

RE: "A Phase I Archaeological Survey at the Buzzard Rock Resort and Marina, Lyon County, Kentucky" by Marc E. Wampler

Dear Mr. Pederson:

The State Historic Preservation Office has received for review and comment the above referenced archaeological report. As a result of the author's investigation, a single historic site was recorded. Site 15Ly109 is a middle nineteenth to early twentieth-century farmstead. Due to the minimal presence of artifacts, shallow deposition, and disturbance, the author found the site not to be eligible for listing in the National Register of Historic Places. I concur with the author's findings.

Should you have any questions, feel free to contact Sarah Miller of my staff at (502) 564-7005, extension 118.

Sincerely,

David L. Morgan, Director
Kentucky Heritage Council and
State Historic Preservation Officer

cc. George Crothers
Marc Wampler
✓ Robert Karwedsky